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Information and communication technology and the sustainability of microfinance

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ABSTRACT

Information and communication technology (ICT) is an important driver in the maturing microfinance industry. Microfinance providers, both non-profit *microfinance institutions* (MFIs) and for-profit banks, provide financial services to the poor that are critical for eradicating poverty and promoting economic development in developing nations. As the industry matures, MFIs face an increasingly competitive environment forcing them to balance the dual goals of outreach and sustainability. Interestingly, ICT may be both the instigator of this new environment and the potential solution to MFI survivability. We propose research directions on the role and impact of ICT in the microfinance industry, with special attention given to the industry's stakeholders and to the value chain of *microfinancial services* that are provided to the poor people in the world who need access to them. This research is at the intersection of inquiry on ICT for development and the digital divide, the impact of microfinance on poverty and development, and the use of information technology (IT) in the financial services industry. It is aimed at encouraging new research that explores important issues with respect to microfinance services to open up a dialogue and debate among interested academic researchers, microfinance institution leaders, and public policy-makers. We discuss the role and impact of ICT at the customer level, the microfinance institutional level, the donor level, and the microfinance industry level, with insights that showcase the value chain impacts and transformations that are occurring as a basis for assessing the extent to which ICT supports the sustainability of microfinance.

We introduced our first microcredit program [in Thailand] in 1975, and the women who organized it said, '... after 35 [or] 36 years, it's still going on. It's a part of the Village Development Bank; it's not a real bank, but it's a fund – microcredit. And we didn't need a big organization to run it – it was run by the villagers themselves. And you probably hardly see a Thai man there. It's always women, women, women, women.'
– Khun Mechai Viravaidya, Thai social entrepreneur.
From a speech made at TED Talks at TEDxChange, September 30, 2010, Bangkok, Thailand.

You know that mantra, 'Give a man a fish, he'll eat for a day. Teach a man to fish, he'll eat for a lifetime.' It's missing something: microfinance is the fishing rod, the boat, the net, etc. Cash and dignity, side by side. ... Maybe the mantra should be: 'Give a man a fish, he'll eat for a day. Give a woman microcredit, she, her husband, her children and her extended family will eat for a lifetime.
– Bono, lead singer of U2 and Irish social activist.
From an article "10 Questions for Bono" in the *New York Times*, September 21, 2005.

1. Introduction

Information and communications technology (ICT) is an important enabler of economic development and the elimination of poverty in developing nations (Warschauer 2004; Dewan and Riggins 2005).[1] The United Nations and the World Bank have been partnering with governments from the developed and developing countries to promote the diffusion of ICT to the neediest parts of the world with the aim of bridging the digital divide and making aid funds stretch further to promote economic development. This aim is

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[1] *Information technology* (IT) and *information and communications technology* (ICT) are often used interchangeably. IT is used in banking industry research and technology productivity studies. ICT is more often used in the international development and microfinance literature. We prefer to use the latter here since it occurs elsewhere in the special issue of *Electronic Commerce Research and Applications* in which this article has been published.

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conceptualized in the UN's Millennium Declaration from September 2000. It states that the eighth Millennium Development Goal is to "develop a global partnership for development," and includes the target objective to "in cooperation with the private sector, make available the benefits of new technologies, especially information and communications" (www.un.org/millenniumgoals).[2]

One of the important economic mechanisms that emerged over the past three decades to encourage economic development is the provision of microfinance services (Robinson 2001). *Microfinance* has been defined as providing "financial services to poor or low-income clients, including consumers and the self-employed" (Ledgerwood 2000). A subset of microfinance, *microcredit* is the provisioning of small loans to such clients, which has proven particularly valuable to small business entrepreneurs who otherwise might not be served by traditional financial institutions due to certain economic constraints (Aghion de Armendáriz and Mordoch 2010). The impact of the microfinance industry gained considerable publicity with the award of the 2006 Nobel Peace Prize to the Grameen Bank and its founder Muhammad Yunus (2007a), who is often credited with formalizing the microfinance approach to serve the unbanked poor (Chaia et al. 2009).

There are several types of *microfinance providers* (MFPs), including *microfinance institutions* (MFIs) that are mostly non-profit *non-governmental organizations* (NGOs), and *peer-to-peer* (P2P) *lending markets*, along with some emerging for-profit banking organizations. (See Appendix A for additional background on P2P lending.) There are also more traditional financial institutions that are beginning to provide services to poorer segments of the population. Yunus founded the Grameen Bank as a non-profit MFI to serve the poor of Bangladesh, and later the broader-based Grameen Foundation (www.grameenfoundation.org). (See Figs. 1 and 2.)

In the process, several important microfinance innovations developed, including those focusing on women and group lending, as well as those originating in developed economics, as a platform for social lending to people in developing nations, as well as *social entrepreneurship*.[3] An example is Kiva (www.kiva.org) in the United States (Flannery 2007), which now operates in 217 countries, and has greater than one million users, among which almost 690,000 have funded loans. (See Fig. 3 and Tables 1 and 2.) On the other hand, Banco Compartamos was founded as a non-profit MFI in Mexico in 1990, but transitioned to a for-profit bank in 2000. (See Fig. 4.) It became the first MFI to launch an initial public offering (IPO) of stock in 2007. In other cases, traditional banks in search of market expansion have been examining the feasibility of providing credit to poorer segments of the population, so they can create business and economic solutions for themselves (Rangan et al. 2007). All three of these types of MFPs are converging toward the same marketspace, though they are bringing different ICT capabilities to the table. While microfinance originally was rather low tech, the maturing of the industry, the development of new ICT hardware and software tools, and the rise of new entrants into the market have forced new levels of ICT sophistication onto MFIs.[4]

As some MFIs seek sustainable business models and traditional financial services firms seek new customers among the poor, the boundaries between MFIs and traditional firms have been dissolving. This has generated a number of serious ethical and moral issues (Cull et al. 2009). For example, most MFIs hold the dual objectives of *outreach*, to extend their reach to more of the poor, and *financial sustainability*, to achieve better financial performance or even profit, in some cases. However, some have argued that the new competition from traditional financial services firms is facilitating a "mission drift" away from outreach to embrace more financial performance outcomes (Mersland and Strom 2009). These changes in industry structure have created an environment leading to excessive microloan interest rates and an avoidance of providing services to the neediest poor that may threaten the outreach objective of MFIs (Velasco 2007; Yunus 2007b).

As the microfinance industry matures, ICT is being promoted as an important tool to help MFIs extend the reach of their helping hands and remain viable in an increasing competitive environment. ICT has long been a favorite area for capital investment in the banking and financial services industry. Traditional financial institutions have found ICT to be particularly valuable at contributing to operational efficiency, analyzing and controlling risk, and reaching existing and new customers. Recently, MFIs have begun to invest in ICT to achieve similar benefits and remain afloat in a more competitive environment. On the other hand, the use of ICT by MFIs and traditional lending institutions is what is driving the elimination of the boundary between the two groups. This is forcing MFIs into a more competitive business arena. A third perspective is that increased visibility into the microfinance industry by third-party Web sites such as the Microfinance Information exchange (MIX Market, www.mixmarket.org) creates competition among MFIs for donor funds. (See Figs. 5 and 6.) This, in our view, is causing them to seek more efficient business operational models and more profitable business performance. A question arises: Does ICT help MFIs to extend the reach of their helping hands or does it cause them to clinch their fists to combat increased competition, or perhaps both?

[2] The eight Millennium Development Goals of the United Nations also include: (1) to eradicate extreme poverty and hunger; (2) to achieve universal primary education; (3) to promote gender equality and empower women; (4) to reduce child mortality rates; (5) to improve maternal health; (6) to combat HIV/AIDS, malaria and other diseases; and (7) to ensure environmental sustainability. Efforts related to microfinance are typically viewed as falling under the first of the eight goals. The overall goal has been to halve the number of people who are the most impoverished, with earnings of only US$1 per day in purchasing power parity terms. As of 2000, the proportion of the world's population living at this extreme level of poverty was on the order of 30%, and had fallen to closer to 20% by 2010.

[3] In late November 2010, *The New York Times* ran an article that was ominously entitled "Tiny Loans, Big Worries in India" (Polgreen and Bajaj 2010). It is suggestive of the importance of our exploration of the MFI and ICT issues in this article. The authors reported on the growth of *social entrepreneurship* in India, which involves different kinds of institutions that try to fulfill social needs while earning a profit (e.g., domestic and foreign commercial banks, beneficent foundations and venture capital firms). Apparently local for-profit microfinance enterprises in the Indian State of Andra Pradesh were charging high interest rates to people with low capabilities to repay their loans (Ryne 2010; Salmon 2010). After a number of suicides among poor borrowers were reported in the press, a public outcry ensued, and the government promulgated an emergency ordinance that sought to limit predatory microlending practices and issued an order in October 2010 to suspend microloan collections for one month (Government of Andra Pradesh 2010). Although the order to halt collections soon was lifted, many microfinance borrowers conducted a repayment strike, so that about 50% of all loans were not being repaid at the time (Bellman and Chang 2010; Kazmin 2010). This example points to the importance of *client-centered microfinance*, which has been espoused by Datar et al. (2008). They contrast this approach with the more common *institution-centered microfinance*, in which MFIs tend to be more focused on borrower payback rates, value-at-risk in their microloan portfolios, and a failure to lend to the truly poor – the 1% at the bottom of the pyramid. Bridgers (2011) reports that the microcredit crisis in India has led to new thinking among MFIs, who are now less likely to target groups of borrowers, where social network dynamics sometimes lead to negative contagion effects for non-payment. Instead, they are more likely to target men now, who are more likely to have the ability to control the payback of a microloan, although only their wives may have their names on the load documentation.

[4] Other kinds of technology-led innovations in *microfinancial intermediation* have also appeared with the intention of broadening the coverage of microfinance services. An especially interesting example is the creation of weather index and crop disaster microinsurance markets in support of farming in semi-arid and weather shock-prone areas of the developing world. For an introduction to the Indian rainfall index insurance market, the interested reader should see Bryla and Syroka (2007), Giné et al. (2007), and Hess (2003). Other microinsurance developments are occurring in many other places around the world, including Ethiopia's Horn of Africa Risk Transfer Program, Nigeria's The Nigerian Micro / Grass Roots Program, South Africa, the Philippines, the South Pacific Islands, and in various Chinese provinces. The interested reader should see the website of Microfinance Africa (microfinanceafrica.net).